

U.S. Geological Survey Proposal

A. Biosolids

Option A-1: Monitor Biosolids Quality

Question:

Are biosolids produced by Metro Wastewater Reclamation District in compliance with biosolids regulations regarding heavy metals (including plutonium) and gross alpha-beta activity?

Concerns:

Biosolids must meet regulations for content of heavy metals and radioactivity as set by Federal and state agencies. Exceeding these regulations could adversely affect soil quality and Metro's plans for land application in Elbert and Arapahoe Counties.

Objective:

To monitor the biosolids for concentrations of arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, plutonium, and gross alpha and beta activity, and to compare these concentrations with appropriate Federal and state standards for biosolids.

Approach:

Sampling of biosolids will be conducted by Metro personnel once per calendar quarter. When water from the Lowry landfill starts being processed by Metro, the sampling will increase to once per month for six months and then revert back to the normal quarterly sampling. Composite samples consisting of approximately 30 subsamples will be taken from the conveyor belt by Metro personnel over a period of twenty-four hours. The mass of each subsample will be determined via an orientation sampling or through discussion with Metro personnel regarding water content, % ash to be expected, etc. The samples will be transported to the USGS laboratories in Lakewood for analysis by appropriate chemical methods.

Biosolids data will be reviewed within one month of receipt from the laboratory and will be maintained in a USGS database. The data will be released to Metro and to the stakeholders on a quarterly basis except for the first six months of processing Lowry landfill water when the data will be released monthly. The data will be released in both tabular forms and in a graphical format to show comparison with E.P.A. regulations. The data will be available in digital and hard-copy formats.

Benefits:

This approach will yield high-quality data for comparison with data generated by Metro's labs and for comparison with Federal and state regulations for biosolids.

Limitations:

This approach only provides a "snapshot" of the chemistry of biosolids on the day of sampling. Any short-term variation in chemistry will not be determined with this effort.